

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A labeled proteinoid microsphere comprising a mixture of amino acids that are thermally condensed and a label comprising a fluorophore, a chemiluminescent molecule, a radioisotope, a paramagnetic ion, or an enzyme; wherein the label is covalently linked to the proteinoid microsphere; and the proteinoid microsphere is stable in solution.
2. (Currently Amended) A labeled proteinoid microsphere comprising a mixture of amino acids that are thermally condensed and a label covalently linked to the proteinoid microsphere, wherein the label is barium sulfate, iocetamic acid, iopanoic acid, ipodate calcium, diatrizoate sodium, diatrizoate meglumine, metrizamide, tyropanoate sodium, fluorine-18, carbon-11, iodine-123, technitium-99m, iodine-131, indium-111, fluorine, gadolinium, fluorescein, isothiocyalate, rhodamine, pacific blue, phycoerythrin, phycocyanin, allophycocyanin, ophthaldehyde, fluorescamine, luminal, isoluminal, luciferin, luciferase or aequorin; and the proteinoid microsphere is stable in solution.
3. (Currently Amended) The labeled proteinoid microsphere of claim 1 wherein the proteinoid microsphere is formed by thermal condensation of a the mixture of amino acids in the presence of a crosslinking agent such that the proteinoid microsphere further comprises a crosslinking agent.
4. (Original) The labeled proteinoid microsphere of claim 3 wherein the crosslinking agent is carbodiimide, glutaraldehyde, N-(m-maleimidobenzoyloxy)-succinimide, a bifunctional sulphydral reagent.
5. (Previously Presented) The labeled proteinoid microsphere of claim 1 that is synthesized for signal amplification or diagnostic imaging.
6. (Cancelled).

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7. (Currently Amended) A labeled proteinoid microsphere that is capable of binding to a specific target comprising a proteinoid microsphere covalently linked to a label and a selective binding moiety that can bind to a specific target, wherein the label comprises a fluorophore, a chemiluminescent molecule, a radioisotope, a paramagnetic ion, or an enzyme; and wherein the proteinoid microsphere comprises a mixture of amino acids that are thermally condensed; and the proteinoid microsphere is stable in solution.
8. (Cancelled)
9. (Currently Amended) A labeled proteinoid microsphere that is capable of binding to a specific target comprising a proteinoid microsphere covalently linked to a label and a selective binding moiety that can bind to a specific target, wherein the label is barium sulfate, iocetamic acid, iopanoic acid, ipodate calcium, diatrizoate sodium, diatrizoate meglumine, metrizamide, tyropanoate sodium, fluorine-18, carbon-11, iodine-123, technitium-99m, iodine-131, indium-111, fluorine, gadolinium, fluorescein, isothiocyalate, rhodamine, pacific blue, phycoerythrin, phycocyanin, allophycocyanin, ophthaldehyde, fluorescamine, luminal, isoluminal, luciferin, luciferase or aequorin; and wherein the proteinoid microsphere comprises a mixture of amino acids that are thermally condensed; and the proteinoid microsphere is stable in solution.
10. (Currently Amended) The labeled proteinoid microsphere of claim 7 wherein the proteinoid microsphere is formed by thermal condensation of a mixture of amino acids in the presence of a crosslinking agent such that the proteinoid microsphere further comprises a crosslinking agent.
11. (Previously Presented) The labeled proteinoid microsphere of claim 10 wherein the crosslinking agent is carbodiimide, glutaraldehyde, N-(m-maleimidobenzoyloxy)-succinimide, a bifunctional sulphydryl reagent.

12. (Previously Presented) The labeled proteinoid microsphere of claim 7 wherein the selective binding moiety is an antibody, a ligand, a receptor, a peptide, a peptidyl analogue or a polypeptide.

13. (Previously Presented) The labeled proteinoid microsphere of claim 7 that is labeled for use in an immunoassay.

14. (Previously Presented) The labeled proteinoid microsphere of claim 13 wherein the immunoassay is a radioimmunoassay, an ELISA, an immunofluorescence assay or a sandwich assay.

15. (Previously Presented) The labeled proteinoid microsphere of claim 7 that is labeled for use in diagnostic imaging or signal amplification.

16. (Previously Presented) The labeled proteinoid microsphere of claim 7 wherein the signal amplification is at least about thirty-fold relative to an antibody preparation linked to the same label.

17. (Currently Amended) A labeled proteinoid microsphere that is capable of binding to a specific target comprising a proteinoid microsphere covalently linked to a label and an antibody that can bind to a specific target, wherein the label comprises a fluorophore, a chemiluminescent molecule, a radioisotope, a paramagnetic ion, or an enzyme; and wherein the proteinoid microsphere comprises a mixture of amino acids that are thermally condensed; and the proteinoid microsphere is stable in solution.

18. (Original) The labeled proteinoid microsphere of claim 17 wherein the proteinoid microsphere comprises a thermally-condensed mixture of amino acids comprising an acidic amino acid and a basic amino acid.

19. (Cancelled)

20. (Previously Presented) The labeled proteinoid microsphere of claim 18 wherein the acidic amino acid is aspartic acid or glutamic acid or a mixture of both.
21. (Previously Presented) The labeled proteinoid microsphere of claim 18 wherein the basic amino acid is arginine or lysine, or a mixture of both.
22. (Previously Presented) The labeled proteinoid microsphere of claim 18 wherein the mixture of amino acids further comprises cysteine.
23. (New) A labeled proteinoid microsphere comprising a mixture of aspartic acid, glutamic acid, asparagine, arginine, and serine amino acids that are thermally condensed and a label comprising a fluorophore, a chemiluminescent molecule, a radioisotope, a paramagnetic ion, or an enzyme; wherein the label is linked to the proteinoid microsphere; and the proteinoid microsphere is stable in solution.